



## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

AFI 1725 IFW

RESPONSE UNDER RULE 116  
EXPEDITED HANDLING PROCEDURES

Patent Application of

Atty Dkt. 839-1479  
C# M#

WANG

TC/A.U. 1725

Serial No. 10/643,089

Examiner: Lin

Filed: August 19, 2003

Date: August 25, 2004

Title: ELLIPTICAL CORE SUPPORT AND PLUG FOR A TURBINE BUCKET

Corres. and Mail  
BOX AF**Mail Stop AF**Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**RESPONSE/AMENDMENT/LETTER**

This is a response/amendment/letter in the above-identified application and includes an attachment which is hereby incorporated by reference and the signature below serves as the signature to the attachment in the absence of any other signature thereon.

☐ **Correspondence Address Indication Form Attached.****Fees are attached as calculated below:**

Total effective claims after amendment 8 minus highest number  
previously paid for 20 (at least 20) = 0 x \$ 18.00 \$ 0.00

Independent claims after amendment 2 minus highest number  
previously paid for 3 (at least 3) = 0 x \$ 86.00 \$ 0.00

If proper multiple dependent claims now added for first time, add \$290.00 (ignore improper) \$ 0.00

Petition is hereby made to extend the current due date so as to cover the filing date of this  
paper and attachment(s) (\$110.00/1 month; \$420.00/2 months; \$950.00/3 months) \$ 0.00

Terminal disclaimer enclosed, add \$ 110.00 \$ 0.00

☐ First/second submission after Final Rejection pursuant to 37 CFR 1.129(a) (\$770.00) \$ 0.00

☐ Please enter the previously unentered, filed☐ Submission attached**Subtotal \$ 0.00**

If "small entity," then enter half (1/2) of subtotal and subtract -\$ 0.00

☐ Applicant claims "small entity" status. ☐ Statement filed herewith

Rule 56 Information Disclosure Statement Filing Fee (\$180.00) \$ 0.00

Assignment Recording Fee (\$40.00) \$ 0.00

Other: 0.00

**TOTAL FEE ENCLOSED \$ 0.00**

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140. A duplicate copy of this sheet is attached.

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By Atty: Michael J. Keenan, Reg. No. 32,106Signature: Michael J. Keenan



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

WANG

Atty. Ref.: 839-1479; Confirmation No. 3067

Appl. No. 10/643,089

TC/A.U. 1725

Filed: August 19, 2003

Examiner: Lin

For: ELLIPTICAL CORE SUPPORT AND PLUG FOR A TURBINE BUCKET

\* \* \* \* \*

August 25, 2004

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**REQUEST FOR RECONSIDERATION**

In response to the Final Official Action of June 28, 2004, applicant hereby requests reconsideration of the single applied ground of rejection for the reasons that follow.

The Examiner has finally rejected claims 1, 2, 4-7, 9 and 10 under 35 U.S.C. 103 as unpatentable over the admitted prior art in view of EP 1,022,434 for the reasons restated in the Final Office Action of June 28. Of significance to this request for reconsideration is the Examiner's remarks in paragraph 3 on page 3 of the Official Action responding to applicant's arguments submitted with the response of June 2, 2004.

Specifically, the Examiner states that "Since EP '434 discloses that the round cross ties

create undesirable stress concentrations and the use of elliptically shaped quartz rod within the ceramic core to minimize or eliminate the stress concentration, it would have been obvious to also use an elliptically shaped support pins (sic) in the shell die of EP '434 in view of the advantage."

The Examiner's understanding of the scope of the disclosure in EP '434 is either incomplete or erroneous. In fact, EP '434 utilizes the elliptical cross tie shape, not to reduce stress in the cross ties, but rather, to reduce stress in the elliptical passages that remain in the bucket after the cross ties have been removed.

The Examiner also suggests that "... as the admitted prior art uses an elliptically shaped support pins (sic) for forming elliptical openings in view of EP '434, the elliptically shaped support pins of the admitted prior art will also has (sic) the property of reduced stress concentration."

The rationale provided by the Examiner here assumes the propriety of the combination in the first instance. The issue here is whether or not the combination of references is proper, and applicant submits that it is not. First, the admitted prior art does not use elliptically shaped support pins. The prior art utilizes round support pins. The EP '434 utilizes elliptical cross ties to produce elliptically shaped openings or passages of reduced stress. These passages are formed by the removal of the cross ties.

In order to combine the references to arrive at the subject invention, wherein elliptical support pins are utilized to reduce stress in the support pins and at the joint

between the support pins and the core body, one must be guided by applicant's own disclosure.

Where is there any teaching in the applied prior art that would have suggested to one of ordinary skill in the art to combine the references in the manner suggested by the Examiner? The EP '434 reference evidences no concern or even recognition of the benefit to reducing stress in core supports (or even in cross ties), and especially at the location where the core supports are fitted to the core, nor for increasing stiffness of the core supports to prevent breakage during casting. Absent a recognition of the problem, why would one of ordinary skill in the art have modified the round support pins of the acknowledged prior art to assume an elliptical shape, when there are no permanent openings created by those support pins for which one might wish to reduce stress as taught by EP '434? Clearly, there would have been no reason to adopt the teaching of the EP '434 for a different component in the casting process, which component does not produce anything like the stressed passage addressed in the EP '434 patent.

The Examiner has not addressed the issue of why one of ordinary skill in the art would have found it obvious to apply the teaching of EP '434 relating to reduced stress in a finished passage to a core support pin and the pin/core interface in the manner required by the claims at issue. The fact is that the suggestion to make the combination comes only from applicant's own disclosure and thus the rejection is improper.


For the sake of completeness, applicant's "Remarks" in the response of June 20, 2004 are incorporated herein by reference.

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Again, it is respectfully submitted that the combination is based upon the use of impermissible hindsight and thus provides an improper basis for a conclusion of obviousness under 35 U.S.C. 103. For these reasons, reconsideration of the outstanding ground of rejection is requested.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

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